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A CONVENIENT CAGE FOR DETERMINING FIELD POPULATIONS OF THE POTATO LEAFHOPPER

By F. W. Poos and J. W. Scrivener,
Division of Cereal and Forage Insect Investigations

One of the important phases of the problem in connection with studies on the potato leafhopper on alfalfa and peanuts is to determine populations of this insect as accurately as possible. Instead of the common and not entirely satisfactory method of determining these by sweeping with an insect net, a cage has recently been developed, at the Arlington Experiment Farm laboratory of the Bureau of Entomology and Plant Quarantine, for determining such populations, particularly on small plots of forage-crop legumes. The results of a comparison of the two methods will be published later.

This cage (figs. 1 and 2) has proved to be valuable and is here described, for the information of others who may wish to make use of it in similar operations. It has a wooden frame and covers an area of exactly 3 square feet, being 18 inches in depth and 24 inches in width. It is 40 inches in height and is designed to take advantage of the positive phototropism of the potato leafhopper. The sides, back, and top are covered with black sateen cloth to exclude the light, and the front is covered with white cheesecloth. The base of the cage is made of 1-inch by 6-inch boards. The other framework is made of ¾-inch by 2½-inch pieces. On the inside of the baseboard there is attached, by means of bolts, a quadrangle made of sheet metal, ½ inch thick by 5 inches in width and sharpened at its bottom edge so that it can readily be forced into the soil, thus ensuring complete contact with the ground. This also serves to mark out definitely the area to be examined for the leafhoppers, which is of importance in alfalfa, as this frequently lodges prior to being cut. The back of the cage, through which the operator works in removing the leafhoppers by means of suction apparatus, is covered by two curtains attached at top and bottom by wires on which they slide, so that they may be opened or closed at the will of the operator in excluding light. In addition, another curtain attached to the top of the back of the cage is used to hang down over the back

of the operator to aid further in excluding light while the cage is in use. This curtain is about 6 inches wider than the cage itself and about 5 feet in length.

The metal loop shown at the top of the front of the cage is used to hold a wagon umbrella to afford shade when needed. At temperatures above 95° F. the operator may be unable to remain in the cage for long periods of time if this is exposed to the direct rays of the sun.

An objection that may be raised to this type of cage is its weight. Ropes attached to its sides aid in handling it. In order to overcome this objection it is advisable to construct the framework, and especially the metal strip attached to the base, of material as light in weight as is consistent with durability.

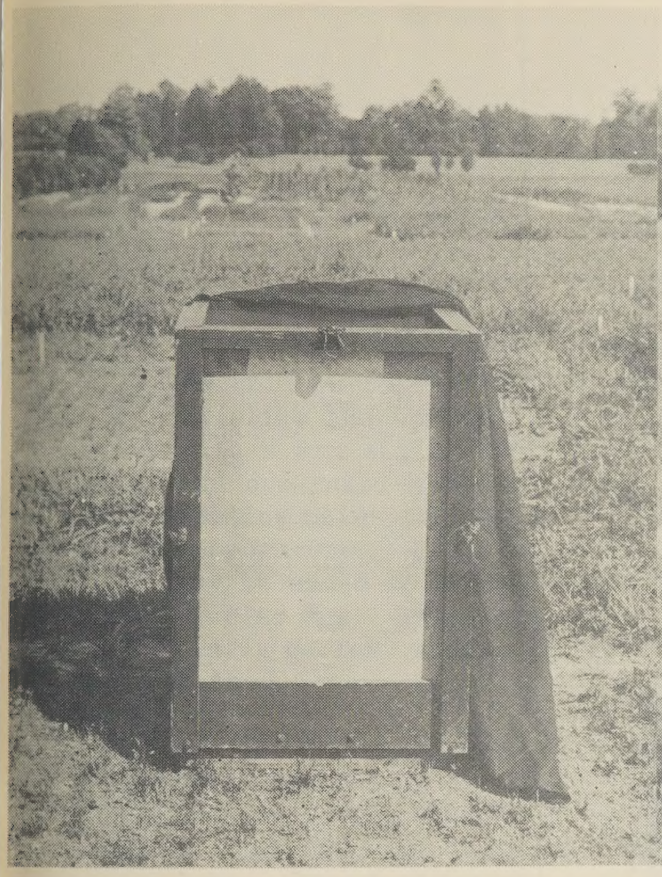

Figure 1.--Front view of the cage used for determining populations of the potato leafhopper.

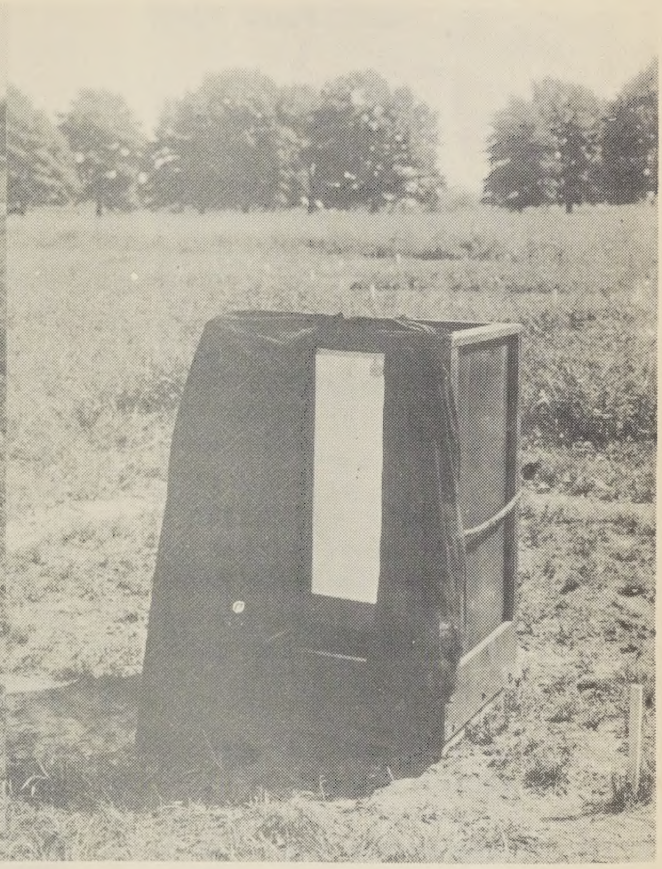

Figure 2.--Rear view of the cage with the larger curtain laid to one side and the smaller curtains open to show construction of the entrance.